

1 CLAIMS

2 1. A method comprising:

3 referencing one or more multimedia objects through a first set of one or
4 more elements;

5 associating the first set of one or more elements with a second set of one or
6 more elements; and

7 arranging the second set of one or more elements to indicate timing for the
8 multimedia objects referenced by the first set of one or more elements.

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10 2. The method of claim 1 wherein the referencing is performed by
11 pointers in the first set of one or more elements that point to the multimedia
12 objects.

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14 3. The method of claim 1 wherein the referencing and associating are
15 performed by the same document.

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17 4. The method of claim 1 wherein the arranging is performed through a
18 time container that defines the second set of one or more elements.

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20 5. The method of claim 4 wherein the time container is defined by
21 SMIL conventions.

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23 6. The method of claim 4 wherein the time container defines that the
24 elements of the second set of one or more elements are rendered at the same time.

1 7. The method of claim 4 wherein the time container defines that the
2 elements of the second set of one or more elements are rendered one after another
3 in an ordered list.

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5 8. The method of claim 4 wherein the time container defines that the
6 elements of the second set of one or more elements are rendered exclusive of one
7 another.

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9 9. The method of claim 1 further comprising rendering of the
10 multimedia objects based on the arranging of the second set of one or more
11 elements.

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13 10. The method of claim 1 further comprising associating the second set
14 of one or more elements with a third set of one or more elements.

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16 11. The method of claim 1 wherein the referencing is performed by a
17 first document and the associating is performed by a second document.

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19 12. The method of claim 11 wherein the first and second documents are
20 written in XML.

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22 13. The method of claim 11 wherein the first document is written in
23 XML, and the second document is a style sheet.

1 14. The method of claim 1 further comprising receiving an input to
2 initiate an event affecting an element in the first set of one or more elements and
3 providing a proxy element in the second set of elements that is configured to
4 reference application of the event.

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6 15. The method of claim 14 wherein the arranging is performed through
7 a time container that defines the second set of one or more elements.

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9 16. The method of claim 15 wherein the time container is defined by
10 SMIL conventions.

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12 17. A multimedia device that performs the method of claim 1.

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14 18. A personal computer that performs the method of claim 1.

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16 19. A method comprising:

17 referencing one or more multimedia objects through a first set of one or
18 more elements in a first document;

19 associating the first set of one or more elements in the first document to a
20 second set of one or more elements in a second document; and

21 arranging the second set of one or more elements of the second document
22 to indicate timing for the multimedia objects referenced by the first set of one or
23 more elements in the first document.

1 20. The method of claim 19 wherein the referencing is performed by
2 pointers in the first set of one or more elements in the first document that point to
3 the one or more multimedia objects.

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5 21. The method of claim 19 wherein the arranging is performed through
6 a time container that defines the second set of one or more elements.

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8 22. The method of claim 21 wherein the time container is defined by
9 SMIL conventions.

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11 23. The method of claim 21 wherein the time container defines that the
12 elements of the second set of one or more elements are rendered at the same time.

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14 24. The method of claim 21 wherein the time container defines that the
15 elements of the second set of one or more elements are rendered one after another
16 in an ordered list.

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18 25. The method of claim 21 wherein the time container defines that the
19 elements of the second set of one or more elements are rendered exclusive of one
20 another.

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22 26. The method of claim 19 further comprising associating the second
23 set of one or more elements in the second document to a third set of one or more
24 elements in a third document.

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1 27. The method of claim 26 wherein the first, second, and third
2 documents are written in XML.

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4 28. The method of claim 19 wherein the first and second documents are
5 written in XML.

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7 29. The method of claim 19 wherein the first document is written in
8 XML, and the second document is a style sheet.

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10 30. The method of claim 19 further comprising receiving an input to
11 initiate an event affecting an element in the first set of one or more elements of the
12 first document and providing a proxy element in the second document that is
13 configured to reference initiation of the event.

14

15 31. The method of claim 19 wherein the arranging is performed through
16 a time container that defines the second set of one or more elements in the second
17 document.

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19 32. A multimedia device that performs the method of claim 19.

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21 33. A personal computer that performs the method of claim 19.

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23 34. A multimedia device comprising:
24 a processor; and

1 instructions stored in a memory and executable on the processor configured
2 to associate a first document with a second document through a first set of
3 elements in the first document and a second set of elements in the second
4 document, wherein the first set of elements reference multimedia objects and the
5 second set of elements are arranged to provide a rendition timing for the
6 multimedia objects.

7

8 35. The multimedia device of claim 34 wherein the rendition timing is a
9 time container.

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11 36. The multimedia device of claim 34 wherein the time container is
12 defined by SMIL conventions.

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14 37. The multimedia device of claim 34 wherein the instructions are
15 further configured to associate a third set of elements in a third document with the
16 second set of elements in the second document.

17

18 38. The multimedia device of claim 34 wherein the instructions are
19 further configured to receive an event initiating input and inform the second
20 document of occurrence of the event.

21

22 39. The multimedia device of claim 34 wherein the instructions are
23 further configured to associate the first set of elements in the first document with a
24 third set of elements in a third document.

1 40. One or more computer-readable media carrying data structures
2 comprising:

3 a first content document formatted in a textual markup language having
4 tagged elements that reference one or more multimedia objects; and

5 a timing document formatted in a textual markup language having a
6 plurality of tagged elements; at least some of the tagged elements of the timing
7 document referencing the elements of the first content document; and the tagged
8 elements of the timing document specifying rendition timings for the multimedia
9 objects referenced by the tagged elements of the first content document.

10
11 41. The one or more computer readable media of claim 40 wherein the
12 rendition timings are defined by time containers.

13
14 42. The one or more computer readable media of claim 40 further
15 comprising a second content document formatted in a textual markup language
16 having tagged elements that reference the tagged elements of the first content
17 document.

18
19 43. One or more computer-readable media carrying data structures
20 comprising:

21 a first document formatted in a textual markup language having a plurality
22 of tagged elements responsive to events; and

23 a second document formatted in a textual markup language having a
24 plurality of tagged elements; at least some of the tagged elements of the second

1 document referencing the events affecting the tagged elements of the first
2 document.

3

4 44. The one or more computer-readable media of claim 43 wherein the
5 tagged elements of the second document specify rendition timings for multimedia
6 objects that are referenced by the tagged elements of the first document.

7

8 45. A system comprising:
9 a broadcast point providing multimedia objects; and
10 a multimedia device that receives the multimedia objects, a first document
11 that references the multimedia objects, and second document that provides
12 rendition timing for the multimedia objects.

13

14 46. The system of claim 45 wherein the multimedia device further
15 receives an input that initiates an event in the first document, and informs the
16 second document.

17

18 47. The system of claim 45 wherein the multimedia device further
19 receives a third document referenced by the second document.